APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,120	02/05/2001	Arie E. Kaufman	AP30612-C-072600.0171	2426

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BAKER & BOTTS
30 ROCKEFELLER PLAZA
NEW YORK, NY   10112

EXAMINER
AZARIAN, SEYED H

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2003* .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *51-61* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

　　If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____ .

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

　　a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 51-54 and 59-61, are rejected under 35 U.S.C. 103(a) as being unpatentable over

Vining et al (U.S. patent 5,920,319) in view of Katsuragawa et al (U.S. patent 5,319,549).

Regarding claim 51, Vining et al discloses a method of performing computed assisted

diagnosis of a region of interest, comprising (Fig. 1, column 5, lines 3-11).

Acquiring imaging scan data including at least a portion of the region of interest (column

2, lines 55-66, images acquired by scanner to select region of interest).

Converting the imaging scan data to a volume representation including a plurality of

voxels, at least a portion of the voxels representing a surface of the region of interest (column 6,

lines 24-35, the voxels or volume of the segment region of interest are tagged and column 10,

lines 56-65, identifies abnormal thickness and curvature).

However Vining et al is silent about "geometric feature of an abnormality". On the other

hand Katsuragawa et al in the same field of radiograph teaches column 4, lines 31-37, detecting

of abnormal areas or geometric feature analysis according to the invention is applied to detected

abnormal region in order to characterize the nature of abnormalities.

Therefore it would have been obvious to one having ordinary skill in the art at the time of

the invention was made, to modify Vining et al invention according to the teaching of

Katsuragawa et al because it provide a sequence geometric pattern relating to shape or line,

circles, squares which achieves accuracy and improve image quality.

Regarding claim 52, Vining et al discloses the method of performing computed assisted

diagnosis, wherein the textural feature is included in a probability density function characterizing

a correlation between two voxels of the portion of voxels (column 9, lines 50-55, refer to high-

density and column 5, lines 15-23, refer to low-density).

Regarding claim 53, Vining et al discloses the method of performing computed assisted

diagnosis, wherein the two voxels are adjacent voxels (Fig. 10e, column 15, lines 22-37, polygon

adjacent).

Regarding claim 54, Vining et al discloses the method of performing computer assisted

diagnosis according to claim 52, wherein intensities of said portion of voxels are used to generate

an estimate of the probability density function (column 6, lines 28-40, an intensity profile along

each vertx's normal vector is calculated to measure x-ray attenuations factor and into the

surrounding tissue until the voxels value).

Regarding claim 59, Vining et al discloses the method of performing computer assisted

diagnosis, wherein the region of interest includes the aorta and wherein the abnormality includes

abdominal aortic aneurysms (column 3, lines 53-64, refer to blood vessels and airway).

Regarding claim 60, Vining et al discloses the method of performing computer assisted

diagnosis wherein the surface is represented as a second differentiable surface where each

surface volume unit has an associate Gauss curvature and wherein said Gauss curvatures

combine to form said geometric features (column 10, lines 48-55, area of curvature).

Regarding claim 61, Vining et al discloses the method of performing computer assisted

diagnosis wherein a plurality of predetermined geometrical feature templates are defined and

wherein the geometric features of said surface are compared to said templates to determine a

geometric feature classification (column 14, lines comparing the conventional method by storing

surface points (voxels on the outer surface of the region-grown object).

3.   Claims 55-58, are rejected under 35 U.S.C. 103(a) as being unpatentable over

as applied to claims above, and further in view of Yeh et al (U.S.6,125,194).

Regarding claim 55, Vining et al and Katsuragawa et al fails to discloses "cumulating

distribution" On the other hand Yeh et al teaches (column 15, lines 15-25, a cumulative

distribution function generation unit, a fraction estimation unit estimating one or more suspect

nodule area fractions by evaluation).

Therefore it would have been obvious to a person of ordinary skill in the art at time the

invention was made, to modify Vining et al and Katsuragawa et al invention according to the

teachings of Yeh et al because it provides distribution function and fraction estimating of image

with improvements in both speed and accuracy of a suspected abnormal area and is routinely
used

Regarding claim 57, Vining et al discloses the method of performing computer assisted

diagnosis, wherein the distance is used to assign intensity values to the voxels representing a

surface of the region of interest and wherein said method further comprises displaying said

voxels such that variations in intensity represent regions of abnormality (column 6, lines 33-40,

an intensity profile along each normal vector is calculated, into the surrounding tissue until the

voxel values begin to decrease or increase).

Regarding claim 58, Vining et al discloses the method of performing computer assisted

diagnosis, wherein the region of interest includes the colon and wherein the abnormality includes

polyps (column 7, lines 10-27, refer to grow an object or polyps).

Regarding claim 56, recite similar limitation as claim 51 and is similarly analyzed.

Other prior art cited

4.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

U.S. patent (5,458,111) to Coin is cited for computed tomographic colonoscopy.

U.S. patent (5,361,763) to Kao et al is cited for method for segmenting features in an

image.

U.S. patent (5,101,475) to Kaufman et al is cited for method and apparatus for

generating arbitrary projections of three-dimensional voxel-based data.

U.S. patent (5,095,521) to Trousset et al is cited method for the computing and imaging

of view of an object.

Contact Information

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907.

The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30

p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Bhavesh Mehta, can be reached at (703) 308-5246.

Any response to this action should be mailed to:

Assistant Commissioner for Patents
Washington, D.C. 20231

Or faxed to:

(703) 872-9314, ("draft" or "informal" communications should be clearly labeled
to expedite delivery to examiner).

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to

T.C. customer service office whose telephone number is (703) 306-0377.

Seyed Azarian
Patent Examiner
Group Art Unit 2625
June 29, 2003

Jayanti K. Patel
Primary Examiner